



Plasterer Equipment Company Integrated Grade Control Fundamentals

Integrated Grade Control

Grade control technologies have the ability to make you more productive and more profitable. These systems use an electronically controlled hydraulic valve, a hydraulic controller, and inputs from the grade control equipment to move the working tool to the designed grade. Currently these grade control systems are used mainly on crawlers and motor graders. There are some areas where excavators, backhoes, landscape loaders, and scrapers are being used with these systems to ensure accurate grade and slope. Grade control systems are not a new technology and are becoming more popular due to increased concern about productivity, reduced labor, ease of use, grading accuracy, and more affordable technology. Right now about 10 percent of the machines being manufactured are being used in a grade control application. In the future this market is expected to grow to 20 percent. By using a grade control system your machine can be more productive. You are able to do the same work you have been doing for years, but now you can do the job faster, with fewer passes, and greater accuracy. By completing the task sooner you will be able to move on to another job faster. Also by being more accurate fewer materials are needed. An example would be preparing for a cement slab. By starting with a flat level surface, the slab will be stronger and use less material. By eliminating unnecessary and unproductive passes with your machines your operators will be increasing their machine uptime. Additionally the machine would not be sitting idle, while the operator checks their grade. You can also lower your daily operating costs, eliminating the need for surveyors and grade checkers. The operator can remain in the cab, being productive and making money since they do not need to continually enter and exit the cab to check grade.

Types of most popular Grade Control Systems:

- Laser Grade Control System (two dimensional work)
 - The laser control system is good for flat or single slope work with a consistent gradient slope. A base station is installed at the customer's jobsite and will send a signal to the receiver mounted on the machine. The machine needs to be in line of sight of the base station for this system to work.
 - There are two main types of laser grade control systems commonly being used in today's industry. The first has a laser receiver mounted on the machine, which sends signals to a display indicating working tool position relative to grade. The operator is required to make manual hydraulic adjustments. The second type is a laser receiver mounted on the machine which sends signals to a controller and electronically makes hydraulic adjustments.
- GPS Grade Control System (three dimensional work)
 - The GPS grade control system is good for flat or compound slope work or for more complex work such as golf courses, and highways. The receiver mounted on the machine receives a signal from multiple satellites for position. A base station is at a known position on the jobsite and is also required at the customer's jobsite and sends continuously updated information by radio signal to the receiver mounted on the machine to correct for any errors in the satellite signal. Since the base station communicates by radio signal it does not need to be within the line of sight of the machine to work properly, but does have limited ranges such as a 2 mile (3.2 km) radius.
- GPS/Laser Grade Control System (three dimensional work)
 - The GPS/Laser Grade Control System provides many of the features of the GPS only system. The benefit is greater accuracy of vertical blade position when compared to GPS alone.

John Deere and Plasterer Equipment are proud to announce the Open Architecture Integrated Grade Control (IGC) option on various machine families. The design is called open architecture because the machine is adaptable to multiple aftermarket grade control suppliers. This approach gives our customer the opportunity to choose the grade control supplier and system that best meet their needs. Both Trimble and Topcon have worked extensively with Deere to integrate their product so they will 'plug and play' with our factory components.

For More information on Topcon or Trimble System's and to download a Cost/Benefit Analysis (excel), visit our website at www.plasterer.com